Remarks/Arguments:

Applicant elects Species D, claims 1, 6 and 7 without traverse.

Claims 1, 6, and 7 have been elected, and claims 2-5 and 8-26 have been at least temporarily withdrawn in response to the restriction requirement, but applicant retains the right to present these claims again should claim 1 or another generic claim be allowed, and/or in a divisional application.

Applicant hereby petitions, under 37 C.F.R. §1.136(a), to extend the time period for reply to the office action by two months, to April 26, 2006. The transmittal letter submitted with this response authorizes charging the petition fee of $450 under 37 C.F.R. §1.17(a)(1) to Deposit Account No. 18-1750.

It is believed that the case is now in condition for allowance, and an early notification of the same is requested.

If an authorization to charge fees in this application to a deposit account is not already be on file, the undersigned hereby authorizes the Director to charge any fees which may be required, or credit any overpayment, to deposit account 18-1750.

The following comments are provided in hopes that they might facilitate review and allowance of the pending claims.

Notice should be given to the use of a dielectric layer having an optical thickness of approximately one eight (1/8) of an optical wave on each of two opposing mirrors, separated by an air gap, such that the layers (preferentially having a high value of refractive index) function as part of an effective optical cavity having a combined optical thickness of approximately one half wave.

The application discloses that the mirror can be of 2 basic types, a (1) dielectric thin film mirror, and a (2) thin metal film mirror. As is known in the art, a dielectric thin film mirror may be of various designs, all of which operate by the principal of multiple beam thin film interference. There are 2 related types of dielectric mirrors, (1) "Quarterwave stacks", and (2) Gradient index

coatings, sometimes referred to as "rugate filters" or "rugate coatings"

In a quarterwave stack the mirror is made of alternating layers of high and low refractive index materials and each layer has a thickness that is approximately equal to some design wavelength λ divided by 4n where n is the refractive index of the layer.

In a simple rugate filter the film has a refractive index that varies as a sinewave in thickness with a period roughly equal to the same optical thickness as the equivalent quarterwave stack.

A rugate filter may be made as a mixed composition film having continuously varying refractive index vs. thickness, or as a multitude of very thin high and low refractive index layers, the thicknesses of the layers being modulated so that the effect is to optically produce a desired continuous refractive index response. This requires the layers to be very thin relative to a quarterwave thickness.

A rugate filter, can be a pure sinewave profile, or can have a more complex, but still "continuous", profile. It can be designed using numerical optimization methods that modify the individual layer thickness to achieve a desired optical response. A quarterwave attack can be thought of as a special case example of a numerically optimized rugate coating.

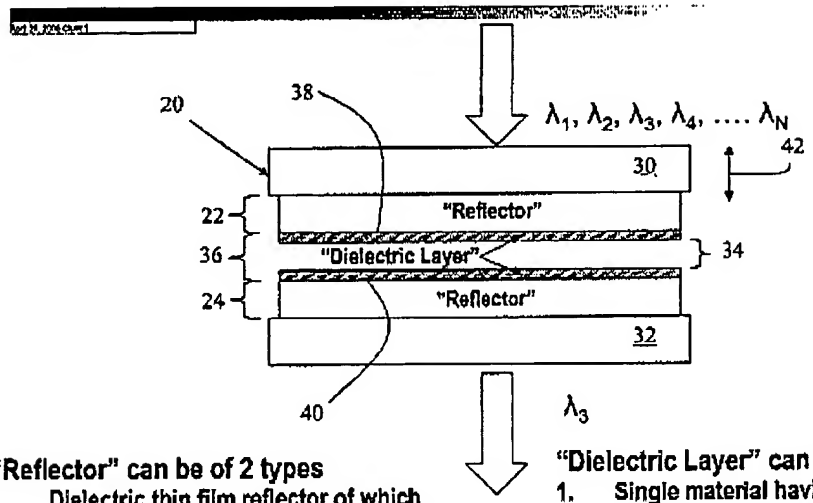
In at least some instances the dielectric layer can have either a constant refractive index or one that varies with thickness, but is fundamentally a dielectric layer having a nominal optical thickness of one eighth of a wave and optimally having a high refractive index.

A similarity between numerous embodiments is the use of a dielectric layer on the surface of two mirror layers. A substantive distinction between embodiments is the use of a mirror comprising either a dielectric reflector or a metal reflector.

Appl. No. 10/673,951
Amdt. dated April 26, 2006
Reply to Office action of Jan. 1, 2006

Docket No. 99SC083US1

Clarification OF Figure 2



"Reflector" can be of 2 types

1. Dielectric thin film reflector of which there are 2 types
   - A. Quarterwave stack
   - B. Gradient index / "rugate"
2. Metal layer

"Dielectric Layer" can be of 2 types

1. Single material having constant refractive index
2. Gradient index layer

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I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:

By: NATALIE RENNA

Natalie Renna
Signature

Dated: April 26, 2006

Very truly yours,

ROCKWELL SCIENTIFIC

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